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(12) UK Patent Application (19) GB (11) 2 258 475 (13) A
(43) Date of A publication 10.02.1993

(21) Application No 9214502.8

(22) Date of filing 08.07.1992

(30) Priority data
(31) 91105446 (32) 09.08.1991 (33) CN

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(51) INT CL⁵
E04H 15/50

(52) UK CL (Edition L)
E1D DF156 DF157 DGS2 D2019 D427
U1S S1734

(56) Documents cited
US 4779635 A US 4607656 A

(58) Field of search
UK CL (Edition K) E1D DF156 DF157 DGS
INT CL⁵ E04H

(54) Folding tent

(57) A folding tent, comprising four vertical main supports (13), twelve supporting structures (14) and a topmost support (15), to constitute a frame which is covered by an awning (12), to form a folding tent. Among these, each main support (13) has an inner support and a slide (for locating purpose), and each support structure comprises two struts (14) hinged together and provided with U-shaped covers for sturdy connection. The awning (12) and main support (13) are fixed together by wing nuts (18), and the topmost support (15) has an elastic inner support (17), to make said awning taut. This ensures a strength of the tent and a proper stability when it is opened. The twelve supports (14) are located two per side as shown, and one from the mid-point of each side to the central support (15).

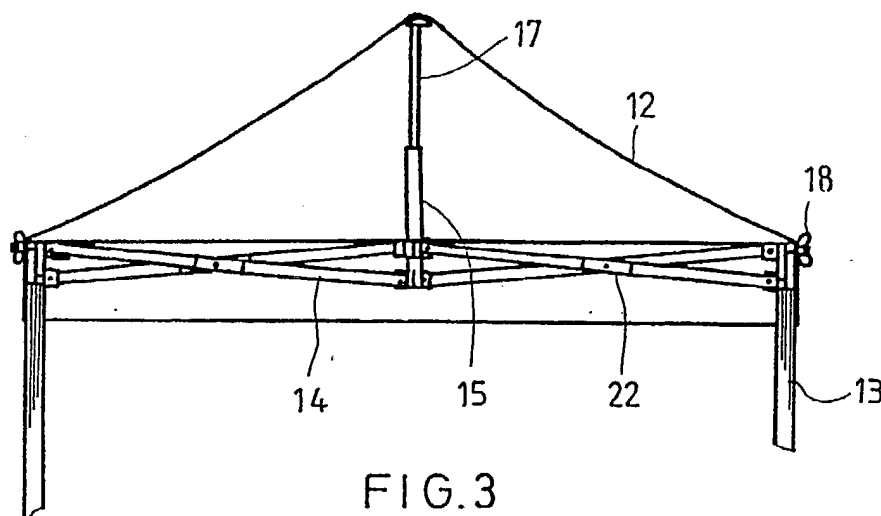


FIG. 3

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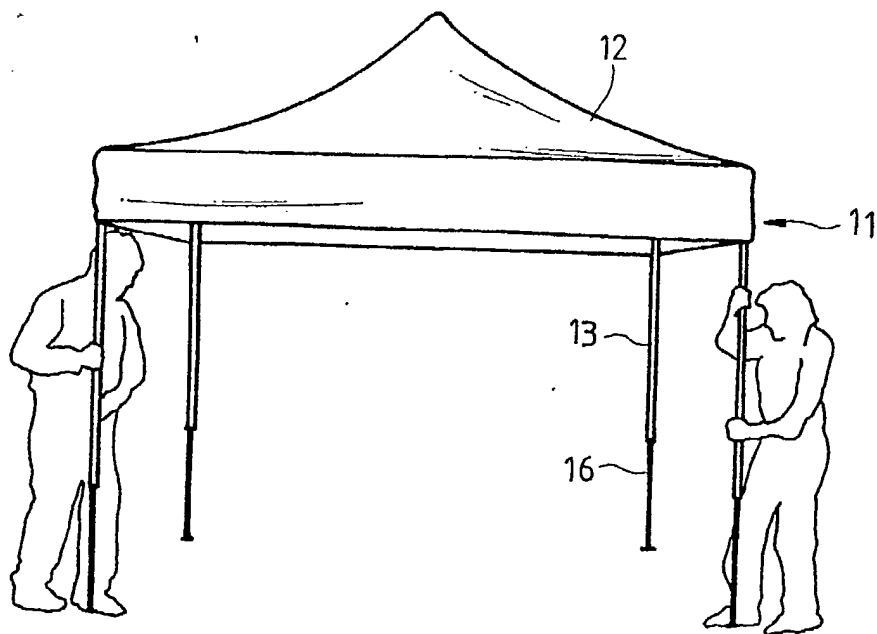


FIG. 1

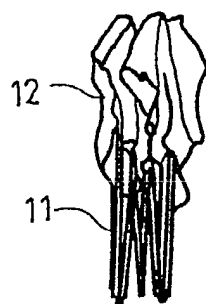


FIG. 2

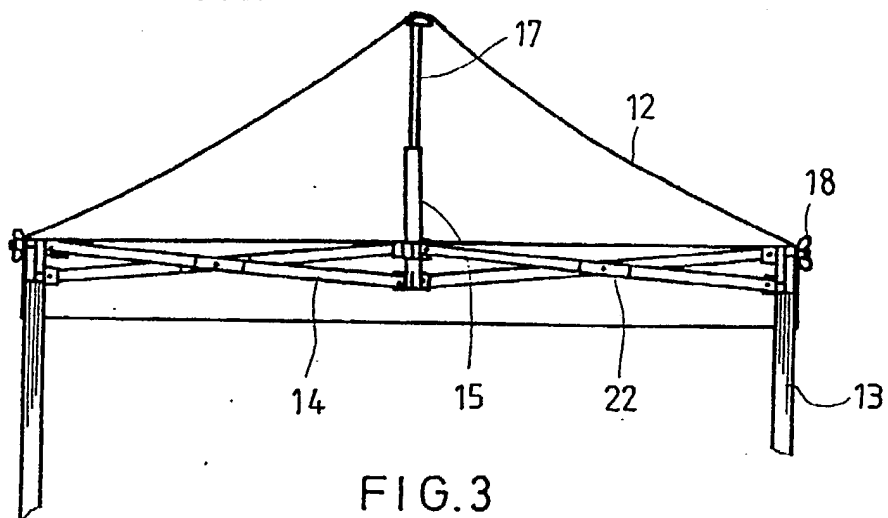


FIG. 3

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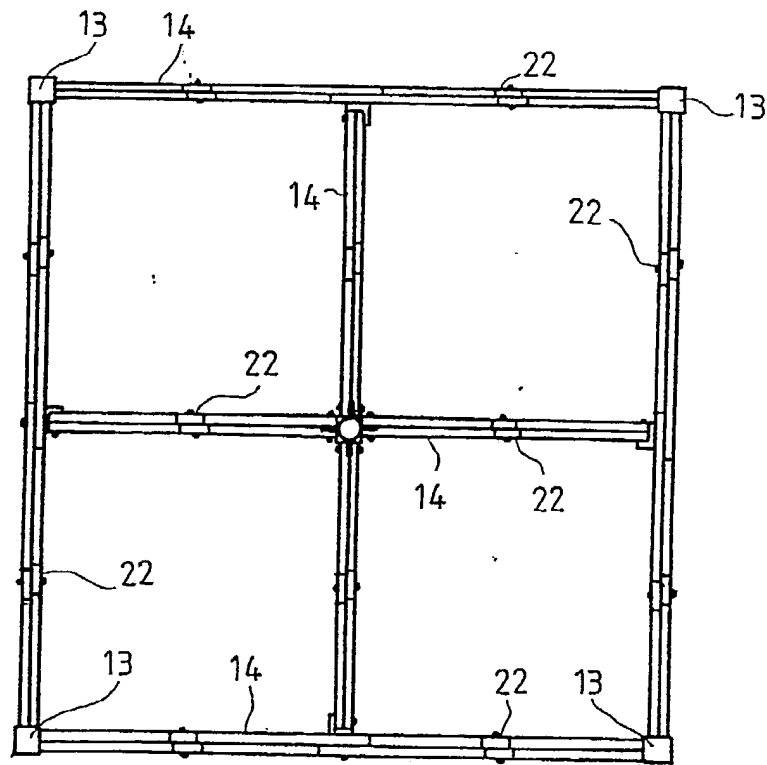


FIG. 4

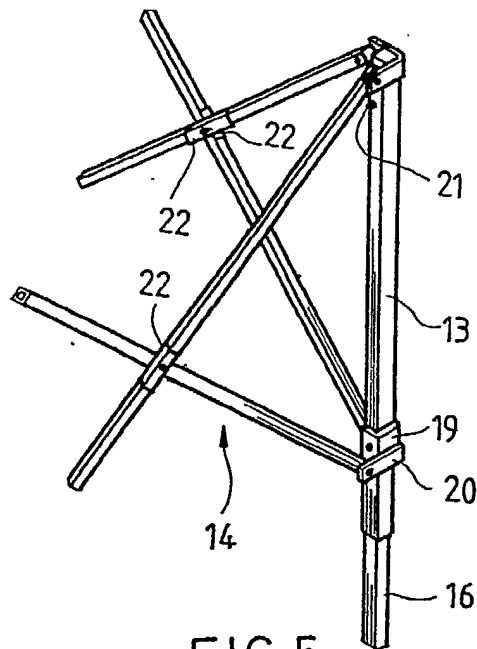


FIG. 5

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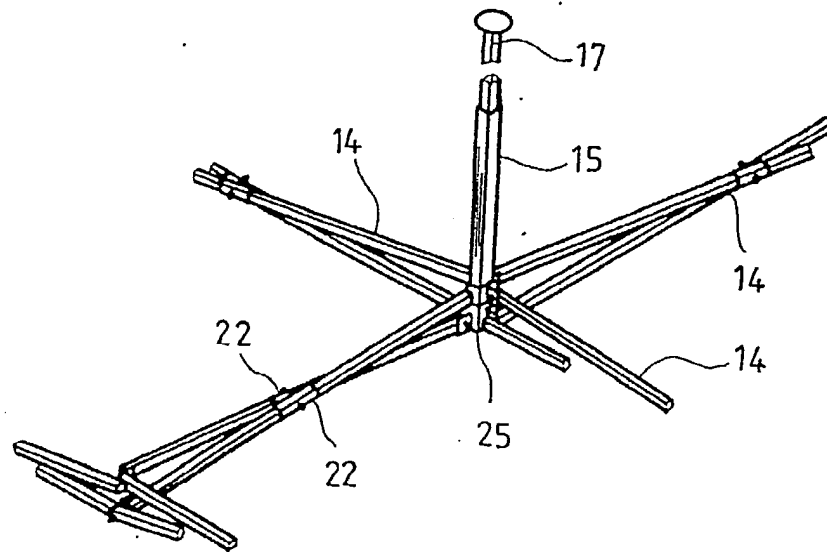


FIG. 6

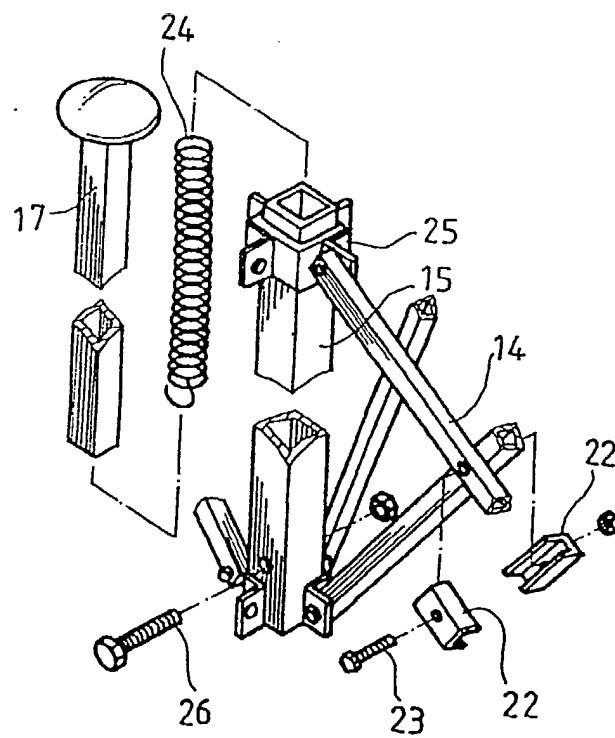


FIG. 7

Description

A Modified Folding Tent

The present invention relates to a folding tent, particularly a modified folding tent with more stable structure, more smooth and good-looking appearance when (said tent is) opened in position.

Folding tents are used in outdoor exercises vastly, such as camping, picnic, outdoor cooking, fair or other outdoor relaxation activities. (A folding tent) is greatly popular with users because of its wonderful practicality, for it is easily opened and propped up into a wide area of the awning, or can be folded quickly to a small size, to be stored and carried conveniently.

With traditional folding tents, their elementary parts have shown some shortcomings in structure. For example, the bond between the awning and the supporters assembly is not so strong, and the tent will be deformed during a burst of strong wind. Additionally, when the supporting structure of a regular folding tent is frequently opened and closed, due to repeating interlocking and telescopic movements, the joining screws and the supporting structure are easily damaged.

Furthermore, the topmost supporter located at the highest position of the supporters assembly of a traditional tent, is of a fixed structure, which will result in wrinkling of the awning when the supporter is propped up. Moreover, the awning will be fatigued and deformed and can not keep a smooth and aesthetic appearance, because of water absorption in rainy days.

In view of the above-mentioned numerous shortcomings and bothers of a regular folding tent, the present invention (is to) provide an improved folding tent, which is designed to include a locating device located in the inside of each main supporter, an elastic topmost supporter and U-

shaped covers for the supporting structures, so as to promote the stability and strengthen the structure of the folding tent, to make (the present innovation) a novel and practical (invention).

The main object of the present invention is to provide a folding tent, which supporters assembly comprises main supporters, each provided with an inner supporter (as a locating device), to facilitate quick opening and fixing in position (of the tent), as well as taking apart of the supporters assembly.

A secondary object of the present invention is to provide an improved folding tent, which has U-shaped covers at the interlocking point of each supporting structure, so as to secure the strength against damage and prolong the life of use.

Another object of the present invention is to provide an improved folding tent, which uses wing nuts to sturdily secure the awning upon the supporters assembly, so that (the tent) can be taken apart or assembled more conveniently and quickly.

A fourth object of the present invention is to provide an improved folding tent, which topmost supporter is provided with an elastic inner supporter, propping up the awning to keep it smooth and aesthetic in appearance.

(The tent) according to the present invention comprises a telescopic folding supporters assembly and an awning spread thereupon, said assembly comprising at least four main supporters, twelve supporting structures which appear each like a window with a cross in it, and a topmost supporter located in the centre of said supporting structures. Each main supporter is provided with a telescopic inner supporter, and said topmost supporter is provided with an elastic inner supporter. Each supporting structure consists of two interlocking bars, and U-shaped covers and hinge screws are provided at the interlocking points. Each main supporter is provided where it is in touch with said awning with a protruding stud,

and the awning is also provided with holes corresponding to said studs for the latter to pass through to be tightened with wing nuts. Each main supporter is provided with a slide to join the relative supporting structures, and each slide has a position hole. Further, at the top of said main supporter, there is provided an elastic pin to fit into said position hole when said slide moves to the top of said main supporter and said supporting structures are fully opened. The topmost supporter in turn comprises an elastic supporting device, made up from a spring and an inner supporter. Said topmost supporter is located in the centre and is made to connect to the supporting structures in four directions by means of a slide. Said spring (of said elastic supporting device) is fixed in the hollow inside of said topmost supporter by a screw which passes through the bottom of the same. And said inner supporter is fitted into the top of said spring.

The present invention will now be described in details, referring to the accompanying drawings, wherein:

Fig. 1 illustrates the opened status of (the tent according to) the present invention;

Fig. 2 is the closed status of the (tent of the) present invention;

Fig. 3 is an illustration of the structure of the supporters assembly and the awning of the present invention;

Fig. 4 is a top view of a supporting structure which appears like a window with a cross inside;

Fig. 5 is an illustration of a main supporter and supporting structures of the present invention;

Fig. 6 is an illustration of the topmost supporter and supporting structures of the present invention;

Fig. 7 is an illustration of a topmost supporter and an elastic inner supporter of the present invention.

As illustrated in Fig. 1, the (tent according to) this invention comprises a telescopic folding supporters assembly 11, and an awning 12 which covers said supporters assembly 11.

The side view of said supporters assembly 11 is illustrated in Fig. 3; (the assembly) includes at least four main supporters 13, twelve support-

ing structures 14 which each composes a top view like a window with a cross in it (see Fig. 4), and a topmost supporter 15 located in the centre. Each main supporter 13 has a telescopic inner supporter 16, and the central topmost supporter 15 has an elastic inner supporter 17. Each supporting structure 14 is composed of two interlocking bars, and is equipped with a hinging screw at the interlocking point. (In this manner,) each main supporter 13 can extent/contract, and each supporting structure 14 can open and contract (round said interlocking point), so that the tent (as a whole) can be quickly opened/closed.

Between each main supporter 13 and the awning 12, as shown in Fig. 3, there is provided a protruding stud at the top of said supporter 13; (studs are also provided) at proper locations round the supporters assembly 11 where it is in contact with said awning 12. Besides, at four edges of the awning 12, there are provided locating holes corresponding to said studs. Said studs can fit into said locating holes, and be tightened up by wing nuts 18, so that said awning 12 can be properly secured upon said supporters assembly 11; and by means of said studs and wing nuts, the tent can be assembled and taken apart very quickly.

(As seen) in Fig. 5, each main supporter 13 is provided with a slide 19 to join the relative supporting structures 14. Each slide 19 has a position hole 20, and an elastic pin 21 is provided at the top of said supporter 13. When said slide 19 moves to the top of said main supporter 13 with said supporting structures 14 fully opened, said elastic pin 21 will fit into the position hole 20 on said slide 19, thus stably locating said slide 19. This ensures that the supporters assembly of the tent is stable in its opened status.

Additionally, as shown in Figs. 5 and 7, each supporting structure 14 is composed of two interlocking bars, and provided at the interlocking point are two U-shaped covers 22 for hinge bolts 23 to go through to build a sturdy interlocking support. Therefore, the supporting strength at each interlocking point of each supporting structure is increased, and multi-interlocking movements (of the supporters assembly) will in no case diminish the supporting strength of the assembly as a whole.

As shown in Figs. 5 and 6, the topmost supporter 15 is provided with a spring 24 and an inner supporter 17, which constitute an elastic inner supporting device. The topmost supporter 15 is located in the centre of the whole supporters assembly, and is connected to four pairs of supporting structures 14 in four directions by means a slide 25. The structure is illustrated in Fig. 6. The spring 24 is fixed in the hollow inside of the topmost supporter 15 by means of a screw 26 which passes through the bottom of said topmost supporter 15. Said inner supporter 17 is fitted into the top of said spring 24, so that the supporter 17 becomes elastic. When the awning is opened, it will be smooth, uniform and thus aesthetic in appearance, propped up by the elastic inner supporter 17 of the topmost supporter 15.

Therefore, as mentioned above, with wing nuts and studs provided to fix said awning onto said supporters assembly, the tent can be assembled or taken apart quickly, and its stability is also increased. Provision of U-shaped covers and slides increases the strength of the tent as well as its stability. And an elastic inner supporter in the topmost supporter increases the tension of the awning, to keep it smooth and good-looking. The folding tent (according to the present invention) is, therefore, more practical in use (as compared with the prior art).

CLAIMS

1. A folding tent comprising a foldable and telescopic support assembly and an awning for support thereon, in which the support assembly comprises at least four main upright supports connected by an array of twelve supporting structures and a topmost support in the centre of said array of supporting structures, in which each main support is of telescopic structure so that its length can be varied, each supporting structure is formed by two intercrossing bars pivoted together at an intermediate crossing point and the topmost support is of telescopic form with one part biased upwardly.
2. A tent according to Claim 1 in which the intercrossing bars are pivotally connected together by a hinge pin and reinforced with U-shaped covers at the crossing points.
3. A tent according to Claim 1 or Claim 2 in which the main supports and supporting structures are provided at spaced intervals with protruding studs arranged to be received into corresponding holes provided on the awning and nuts are provided for retaining the studs in the holes.
4. A tent according to any of Claims 1 to 3 in which the main supports are provided with slide members slidable thereon and carrying the ends of the supporting structures adjacent the main supports and including retaining means for retaining the slides relative to the supports in the fully opening condition of the tent.
5. A tent according to any of Claims 1 to 4 in which the topmost support comprises an outer tube housing a spring and an inner tube biased upwardly by the spring and intended to contact the top centre of awning to apply a stretching force thereto.
6. A tent according to any of Claims 1 to 5 in which the array of twelve supporting structures comprises four pairs of supporting structures each forming one side of a square with the structure of each pair connected to one of the supports

at one end and to the other of its pair at its other end and four structures each connected at one end to the topmost support and at its other end to the joining point of one of the pairs forming each side.

7. A tent according to Claim 6 including a slide attached to the topmost support and connected to four supporting structures.

8. A folding tent substantially as described herein with reference to or as illustrated in the accompanying drawings.

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Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

Application number

GB 9214502.8

Relevant Technical fields

(i) UK CI (Edition K) E1D DF156 DF157 DGS

(ii) Int CI (Edition 5) E04H

Search Examiner

J D CANTRELL

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

6 OCTOBER 1992

Documents considered relevant following a search in respect of claims

1-8

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
Y	US 4779635 (LYNCH)	1, 4, 5
Y	US 4607656 (CARTER)	1, 4, 5

Category	Identity of document and relevant passages	Relevance to claim(s)

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